

## WHAT IS CLAIMED IS:

1. A sample screening apparatus, comprising:

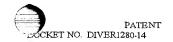
a plurality of capillaries held together in an array, wherein each capillary comprises at least one wall defining a lumen for retaining a sample;

interstitial material disposed between adjacent capillaries in the array; and one or more reference indicia formed within of the interstitial material.

- 2. The apparatus of claim 1, wherein each capillary has an aspect ratio of between 10:1 and 1000:1.
- 3. The apparatus of claim 2, wherein each capillary has an aspect ratio of between 20:1 and 100:1.
- 4. The apparatus of claim 2, wherein each capillary has an aspect ratio of between 40:1 and 50:1.
- 5. The apparatus of claim 1, wherein each capillary has a length of between 5mm and 10 cm.
- 6. The apparatus of claim 1, wherein the lumen of each capillary has an internal diameter of between  $3\mu m$  and  $500\mu m$ .
- 7. The apparatus of claim 1, wherein the plurality of capillaries are fused together to form the array.
- 8. The apparatus of claim 1, wherein the reference indicia are formed at intervals of a number of capillaries.
- 9. The apparatus of claim 1, wherein the reference indicia are formed at edges of the array.
  - 10. The apparatus of claim 1, wherein the reference indicia are formed of glass.



- 11. A capillary for screening a sample, wherein the capillary is adapted for being held in an array of capillaries, the capillary comprising:
- a first wall defining a lumen for retaining the sample, wherein the first wall forms a waveguide for propagating detectable signals therein; and
- a second wall formed of a filtering material, for filtering excitation energy provided to the lumen to excite the sample.
  - 12. The capillary of claim 11, wherein the second wall circumscribes the first wall.
- 13. The capillary of claim 11, wherein the second wall is formed of extra mural absorption (EMA) glass.
- 14. The capillary of claim 13, wherein the EMA glass is tuned to filter specific wavelengths of light.
  - 15. A capillary array for screening a plurality of samples, comprising:
- a plurality of capillaries, held together into the array, wherein each capillary includes a first wall defining a lumen for retaining the sample, and a second wall circumscribing the first wall, for filtering excitation energy provided to the lumen to excite the sample.
- 16. The array of claim 15, wherein the second wall of each capillary is formed of a filtering material.
  - 17. The array of claim 16, wherein the filtering material is EMA glass.
- 18. The array of claim 17, wherein the EMA glass is tuned to filter specific wavelengths of light.
- 19. The array of claim 15, further comprising interstitial material between adjacent capillaries.



- 20. The array of claim 19, wherein the interstitial material is adapted to absorb light.
- 21. A method for incubating a bioactivity or biomolecule of interest, comprising: introducing a first component into at least a portion of a capillary of a capillary array, wherein each capillary of the capillary array comprises at least one wall defining a lumen for retaining the first component;

introducing air into the capillary behind the first component; and introducing a second component into the capillary, wherein the second component is separated from the first component by the air.

- 22. The method of claim 21, wherein either the first or second component includes at least one particle of interest.
- 23. The method of claim 22, wherein the other of the first and second component includes a developer for causing an activity of interest by the particle of interest.
  - 24. The method of claim 22, wherein the particle of interest is a molecule.
- 25. The method of claim 21, further comprising disrupting the air to combine the first component with the second component.
  - 26. The method of claim 21, wherein the first and second components are liquids.



27. A method of incubating a sample of interest, comprising:

introducing a first liquid labeled with a detectable particle into a capillary of a capillary array, wherein each capillary of the capillary array comprises at least one wall defining a lumen for retaining the liquid and the detectable particle;

submersing one end of the capillary into a fluid bath containing a second liquid; and evaporating the first liquid from the opposite end of the capillary to draw the second liquid into the capillary tube.

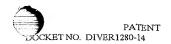
- 28. The method of claim 27, wherein the second liquid contains a developer for causing an activity of interest by the detectable particle.
  - 29. The method of claim 28, wherein the developer includes at least one nutrient.
  - 30. The method of claim 29, wherein the nutrient includes oxygen.
  - 31. A method of incubating a sample of interest, comprising:

introducing a first liquid labeled with a detectable particle into a capillary of a capillary array, wherein each capillary of the capillary array comprises at least one wall defining a lumen for retaining the first liquid and the detectable particle, and wherein the at least one wall is coated with a binding material for binding the detectable particle to the at least one wall;

removing the first liquid from the capillary tube, wherein the bound detectable particle is maintained within the capillary; and

introducing a second liquid into the capillary tube.

- 32. The method of claim 31, wherein the binding material includes DNA.
- 33. The method of claim 31, wherein the binding material includes an antibody.



34. A method of incubating a sample of interest, comprising:

introducing a liquid labeled with a detectable particle into a capillary of a capillary array, wherein each capillary of the capillary array comprises at least one wall defining a lumen for retaining the liquid and the detectable particle;

introducing paramagnetic beads to the liquid; and

exposing the capillary containing the paramagnetic beads to a magnetic field to cause movement of the paramagnetic beads in the liquid within the capillary.

- 35. The method of claim 35, further comprising reversing polarity of the magnetic field to cause reverse movement of the paramagnetic beads.
- 36. A method of recovering a sample from one of a plurality of capillaries in a capillary array, comprising:

determining a coordinate position of a recovery tool;

detecting a coordinate location of a capillary containing the sample;

correlating, via relative movement between the recovery tool and the capillary containing the sample, the coordinate position of the recovery tool with the coordinate location of the capillary; and

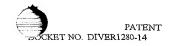
providing contact between the capillary and the recovery tool.

- 36. The method of claim 34, further comprising removing, with the recovery tool, the sample from the capillary containing the sample.
- 37. A recovery apparatus for a sample screening system, wherein the system includes a plurality of capillaries formed into an array, the apparatus comprising: a recovery tool adapted to contact at least one capillary of the capillary array and recover a sample therefrom;

an ejector, connected with the recovery tool, for ejecting the recovered sample from the recovery tool.

38. The recovery apparatus of claim 37, wherein the recovery tool includes a needle connected with a collection container.

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- $4^{\circ}$  39. The recovery apparatus of claim 37, wherein the recovery tool includes an aspirator for recovering the sample.
- The recovery apparatus of claim 37, wherein the ejector includes a jet mechanism adapted to expel the recovered sample.
- The recovery apparatus of claim 37, wherein the jet mechanism is operable by thermal energy applied thereto.
- The recovery apparatus of claim 41, further comprising a heating element connected to the jet mechanism.